

**UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK**

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NETWORK-1 TECHNOLOGIES, INC.,	§	
	§	
Plaintiff,	§	
	§	Case No. 1:14-cv-02396-PGG
v.	§	
	§	
GOOGLE, INC. and YOUTUBE, LLC	§	
	§	
	§	
Defendants.	§	
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**GOOGLE INC.'S AND YOUTUBE, LLC'S
CLAIM CONSTRUCTION RESPONSE BRIEF**

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I. INTRODUCTION

The parties' claim construction dispute centers on a handful of terms that Google contends are indefinite—terms that the patentee never defined, and in some cases never even used in the specification of the patents-in-suit. Network-1 tries to avoid the patents' shortcomings by offering unsupported constructions and conflicting evidence. Where Network-1 claims to describe the specification, it mischaracterizes what the patent actually discloses. Where Network-1 points to extrinsic evidence, it offers volume over substance—citing irrelevant and contradictory references. Throughout, Network-1 and its expert, Dr. Karypis, conflate the teachings of the prior art circa 2000, when the patents were filed, with the accused Content ID system, designed by Google, Inc. and YouTube, LLC (collectively "Google") nearly a decade after the patents were drafted. Network-1 cannot be allowed to use claim construction to rewrite the patent claims to fix deficiencies and cover ideas never contemplated by the patentee. Cutting through Network-1's smoke and mirrors to the actual language of the patents, and extrinsic evidence that would actually have been reflective of the views of persons skilled in the art at the time the patents were filed, shows that one skilled in the art cannot with reasonable certainty understand the scope of the claims. The Court, therefore, should hold these terms indefinite.

The question of indefiniteness is particularly important here because its resolution may significantly streamline the case. Indeed, a ruling that the term "non-exhaustive" is indefinite would invalidate every single asserted claim, disposing of the case entirely. Similarly, a ruling that the term "associating" is indefinite would invalidate all asserted claims in two of the four asserted patents.

II. BACKGROUND

The asserted patents¹ disclose a system for automatically identifying an unknown electronic media work (e.g., a digital song or a video) and, based on the determined identity, performing an action. Exh. 1 at Abstract.² To accomplish this, each time the disclosed system receives an unknown electronic work ("query work"), it "extracts" a "feature vector," which is a numerical representation of certain audiovisual characteristics of the work.³ The disclosed system then performs a "search" to compare this feature vector to a preexisting database of feature vectors representing known works. If the disclosed system detects quantitative similarity between the feature vector of the unknown work and a feature vector corresponding to a known work, it concludes that the two are "neighbors" and therefore likely copies of the same work. Based on the determined identity of the work, the system then looks up instructions in a database for performing an appropriate "action."

The patentee, Dr. Cox, does not claim to have invented any of the foregoing steps, and instead points to known methods for performing each step. For instance, the patent admits that Dr. Cox did not invent "extracting" a "feature vector," or even a novel means for doing so:

"The purpose of the feature extraction operation is to derive a compact representation of the work that can subsequently be used for the purpose of recognition The recognition literature contains many different representations For audio, common feature vectors are based on Fourier frequency decompositions, but other representations are possible."

¹ U.S. Patent Nos. 8,010,988 ("the '988 Patent") (Exh. 1); 8,205,237 ("the '237 Patent") (Exh. 2); 8,640,179 ("the '179 Patent") (Exh. 3); and 8,656,441 ("the '441 Patent") (Exh. 4).

² As used herein, the terms "Exhibit" and "Exh." refer to exhibits to the April 27, 2015 Declaration of Douglas R. Nemec in Support of Google Inc.'s and YouTube, LLC's Claim Construction Brief.

³ The parties agree that the terms "compact electronic representation" and "extracted features" are essentially identical to "feature vector." Dkt. No. 53 at 2.

Exh. 1 at 7:20-43. Similarly, the patent admits that Dr. Cox did not invent the step of "searching" to locate a "neighbor," or even a novel means for doing so:

"The recognition system described can be considered to be a form of nearest neighbor search in a high dimensional feature space. This problem has been very well studied and is known to be very difficult as the dimensionality of the vectors increases. A number of possible data structures are applicable including kd-trees and vantage point trees."

Exh. 1 at 22:1-6. Further, the patent does not purport to invent electronically performing an action, or a novel means of doing so. *E.g.*, Exh. 1 at 3:18-21. Finally, the patent explains that Dr. Cox did not invent any novel hardware. *See* Exh. 1 at 3:55-4:3 (contrasting prior art systems that required hardware modifications).

Throughout its brief, Network-1 relies on the insights of Google's Content ID system to interpret the asserted patents. This is inappropriate not only because Content ID is the accused system in this lawsuit, but also because Content ID was built seven years after the patent specification was written, and has been continuously improved since.⁴ For example, Network-1 speculates that, "in an internet video system, the operator might wish to compare each new video uploaded by a user . . . to limit copyright infringement by users of the system." Dkt. No. 63 at 3. Similarly, Network-1 imagines that the disclosed system is capable of identifying videos "recorded by someone using a video camera pointed at a television screen." *Id.* at 4. The asserted patents do not even envision user-uploaded videos, let alone performing copyright compliance. *See generally* Exh. 1. Rather, the patents address the narrow task of allowing end users—such as consumers—to identify a broadcast work (e.g., a commercial that is broadcasted)

⁴ Similarly, Network-1 attempts to describe Content ID using Google's internal terminology to skew claim construction in its favor. Most notably, Network-1's brief repeatedly uses the terms "fingerprint" and "reference [work]," but neither are mentioned in the specification of the asserted patents. *E.g.*, '988 Patent.

and then perform a related action (e.g., link the viewer to a URL or initiate an e-commerce transaction). *E.g.*, Exh. 1 at 9:63-10:4, 1:36-46 ("Basically, such linking can be used to (a) promote commerce, such as e-commerce, and/or (b) enhance interest in the work itself by facilitating audience interaction or participation."), 6:3-7.

III. LEGAL PRINCIPLES

A. CLAIM CONSTRUCTION

Construing patent claims begins with the words of the claims themselves. *See Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996); *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-14 (Fed. Cir. 2005) (en banc). When a claim term's meaning is not clear on its face, courts look to intrinsic evidence, such as the patent's specification.⁵ *See Liquid Dynamics Corp. v. Vaughan Co.*, 355 F.3d 1361, 1367 (Fed. Cir. 2004). The specification naturally "informs the proper construction of the claims" and can clarify what the inventor "'intended to envelop with the claim.'" *Phillips*, 415 F.3d at 1316 (citation omitted). Importing limitations from the specification into the claims, however, is improper. *Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1324 (Fed. Cir. 2002). Additionally, a claim must be construed to reflect what the patentee actually invented, "without regard to the accused product." *Jurgens v. McKasy*, 927 F.2d 1552, 1560 (Fed. Cir. 1991); *see also Kim v. Dawn Food Prods., Inc.*, No. 01 C 1906, 2004 WL 2658068, at *5 (N.D. Ill. Oct. 13, 2004) (rejecting a proposed construction "because it is improper to construe a claim by referencing the Accused Products").

The court may also consider extrinsic evidence, such as dictionaries and treatises, to shed

⁵ The intrinsic evidence includes the prosecution history of the asserted patents and related patents. *E.g.*, *Sunovion Pharm., Inc. v. Teva Pharm. USA, Inc.*, 731 F.3d 1271, 1276 (Fed. Cir. 2013). Pursuant to Paragraph 11(d) of the Case Management Plan and Scheduling Order (Dkt. No. 31), Google reserves the right to rely on the prosecution histories in support of its claim construction positions.

further light on the meaning of the claim language. *See Virnetx, Inc. v. Cisco Sys., Inc.*, 767 F.3d 1308, 1316 (Fed. Cir. 2014). Such evidence, however, is "less significant" than intrinsic evidence and cannot be at odds with the intrinsic record. *See Phillips*, 415 F.3d at 1317-18 (citation omitted). Similarly, expert testimony may be useful to "provide background," however, a Court must discount testimony "that is clearly at odds with . . . the written record of the patent." *Id.* at 1318 (citation omitted). Moreover, "[i]t is improper to use the accused product as a form of extrinsic evidence to supply limitations for patent claim language." *Curtiss-Wright Flow Control Corp. v. Z & J Techs. GmbH*, 563 F. Supp. 2d 1109, 1115 (C.D. Cal. 2007) (citing *Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1331 (Fed. Cir. 2006)).

B. INDEFINITENESS

The Supreme Court recently lowered the bar for proving a patent invalid for indefiniteness. *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2123 (2014). Specifically, in *Nautilus, Inc. v. Biosig Instruments, Inc.*, the Supreme Court rejected the prior standard for indefiniteness, under which claims were considered indefinite only if "insolubly ambiguous." *Id.*; *Bayer Pharma AG v. Watson Labs., Inc.*, No. C.A. 12-1726-LPS-CJB, 2014 WL 4954617, at *3 n.6 (D. Del. Sept. 30, 2014). The Supreme Court explained that the prior standard was too lax, improperly "tolerat[ing] imprecision just short of that rendering a claim 'insolubly ambiguous'" and therefore "diminish[ing] the definiteness requirement's public-notice function and foster[ing] the innovation-discouraging 'zone of uncertainty.'" *Nautilus*, 134 S. Ct. at 2130. Instead, the Supreme Court held that "a patent is invalid for indefiniteness if its claims, read in light of the patent's specification . . . fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Id.* at 2123; *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1369-70 (Fed. Cir. 2014).

"This new standard is stricter than that previously employed by the Federal Circuit."

Broussard v. Go-Devil Mfg. Co. of La., Inc., 29 F. Supp. 3d 753, 803 (M.D. La. 2014). For instance, "if a person of ordinary skill would determine that there are multiple equally plausible but materially dissimilar constructions of a claim term, the claim would fail the 'reasonable certainty' standard." *Diamond Coating Techs., LLC v. Hyundai Motor Am.*, Nos. 8:13-cv-01480-MRP(DFMx); 8-13-cv-01481-MRP(DFM), 2014 WL 5698445, at *4 (C.D. Cal. Aug. 25, 2014); *see also Cal. Inst. of Tech. v. Hughes Commc'ns Inc.*, 35 F. Supp. 3d 1176, 1181 (C.D. Cal. 2014). Indeed, it is no longer "sufficient that a court can ascribe *some* meaning to a patent's claims," instead a patent must make clear to one skilled in the art the boundaries of the claimed invention. *Nautilus*, 134 S. Ct. at 2130 (emphasis in original).

IV. DISPUTED CONSTRUCTIONS

As set forth below, Google disputes Network-1's constructions for four claim terms. Because the patents fail to inform a person skilled in the art of the scope of these terms, the Court should hold them indefinite.

A. "neighbor" and "near neighbor"

Term	Claims ⁶	Network-1's Construction	Google's Construction
"neighbor" "near neighbor"	'988: 15 , 17, 31, 32, 51, 52 '237: 25 , 26, 27 '179: 13 , 24 , 34, 35 '441: 1 , 2, 3, 9, 11, 22, 23 , 25 , 26	"A close, but not necessarily exact or the closest, match of a feature vector, compact electronic representation, or set of extracted features to another, that has a distance or difference that falls within a defined threshold of a query."	Google does not oppose Network-1's construction for purposes of the present litigation.

⁶ Bold numbers indicate claims explicitly reciting the claim term. Non-bold numbers indicate claims depending from claims that explicitly recite the claim term. Network-1's opening brief employs the same lists of bold and non-bold claim numbers, but mistakenly indicates that "bold indicates independent claim[s]." Dkt. No. 63 at 8, n. 3; 20, n. 17, n. 18; 24, n. 19. In fact, many of the bolded claim numbers are dependent claims.

As this Court has been informed, Google filed petitions for Inter Partes Review ("IPR") of the asserted patents. As part of that process Google proposed claim constructions for "neighbor" and "near neighbor." In an IPR proceeding, the Patent Trial and Appeal Board ("PTAB") applies a "broadest reasonable interpretation" standard to patent claims, which differs from the standard applied by a district court in a claim construction proceeding. *See Virginia Innovation Sciences, Inc. v. Samsung Elecs. Co.*, 983 F.Supp.2d 713, 765 (E.D. Va. 2014) (noting that the PTAB applies the "*broadest reasonable interpretation* of the claim terms" while a district court "adopts a construction based on what a person having *ordinary skill in the relevant art* would understand the claims to mean as of the time of the invention") (alterations in original). In its IPR petitions, Google proposed a different construction for "neighbor" and "near neighbor" than that proposed here, consistent with the different standard applied in an IPR. Google believes that the construction proposed in its IPR petitions correctly reflects the broadest reasonable interpretation of the claims as supported by the intrinsic record. For the purposes of this litigation and the claim construction standard applied here, however, Google does not dispute Network-1's proposed construction.

B. "non-exhaustive search"

Term	Claims	Network-1's Construction	Google's Construction
"non-exhaustive search"	'988: 15 , 17, 31, 32, 51, 52 '237: 25 , 26, 27	"A search using an algorithm designed to locate a match without requiring the query to be compared to every record in the reference data set being searched until a match is identified."	Indefinite.

Unable to affirmatively define "non-exhaustive search," Network-1 argues that the term should encompass *any* conceivable method *other than* sequential comparison of an unknown

work to every single known work. This construction implicitly defines an "exhaustive" search as a sequential comparison of an unknown work to every single known work, which is described in the patents as a "linear" search, and is known in the art as a "brute force" search. Moulin Decl. at ¶ 33. Network-1's position is a transparent attempt to exploit the absence of disclosure in the specification to ensnare a range of content identification systems never envisioned by the patentee. Because neither this construction nor any other is supported in the specification, and because the extrinsic evidence supplies numerous equally plausible conflicting definitions, this term should be held indefinite.

1. The Intrinsic Evidence Fails To Describe The Scope Of "Non-Exhaustive" At All, Let Alone With Reasonable Certainty

The words "non-exhaustive" and "exhaustive" never appear in the specification of the asserted patents. Nor do synonyms for either term. Nevertheless, Network-1 claims that the specification explicitly defines an "exhaustive" search as a "linear" search and, consequently, "non-exhaustive" search as *anything other than* "linear" search. Dkt. No. 63 at 15 ("[t]he specification explains that an exhaustive search . . . [is] 'a linear search of all N entries'"). In fact, the passage that Network-1 cites merely notes that "linear" search is one known "*neighbor*" search algorithm:

"This problem is one of nearest neighbor search in a (high-dimensional) feature space. In previous work, it was not uncommon to perform a linear search of all N entries, perhaps halting the search when the first match is found. On average, this will require $N/2$ comparisons."

Exh. 1 at 9:19-28. Like the specification in general, this passage does not use the word "exhaustive," let alone state that "linear" search is an example of "exhaustive" search.⁷ *See id.*

⁷ To the extent that Network-1 contends a "linear search" is "exhaustive" because it is not "sublinear," it is conflating separate concepts. Specifically, Claim 1 of the '988 recites "a non-exhaustive search," and Claim 3—which depends from Claim 1—further requires that
(cont'd)

Thus, a person skilled in the art could not infer a definition of "non-exhaustive" from the specification's description of "linear" search.

Even if the specification did state that linear search was an example of "exhaustive" search, it would not be appropriate to define "non-exhaustive" search as *anything other than* linear search, as Network-1 proposes. As a matter of logic, a single example of an item outside of a category cannot define the boundaries of that category. For instance, a unicycle is not a mammal. However, it does not follow that a mammal is *anything other than* a unicycle. Similarly, even if a "linear" search were not a "non-exhaustive" search, it would not follow that a "non-exhaustive" search is *anything other than* a "linear" search. Network-1's inability to define "non-exhaustive" without resort to this logical fallacy underscores the indefiniteness of the term.

Network-1 further asserts that "[t]he patents-in-suit provide several examples of non-exhaustive search methodologies in the specification" including "binary search," "clustering," "kd-trees," "vantage point trees," "excluded middle vantage point forests," and "approximate nearest neighbor search."⁸ Dkt. No. 63 at 15-16. Again, while the specification does mention several known search methods, it never hints at whether they might be considered exhaustive or non-exhaustive. *E.g.*, Exh. 1 at 9:19-38. Indeed, the original claims of the patent family did not

(*cont'd from previous page*)

"the non-exhaustive search is sublinear." '988 Patent, Claims 1, 3. Thus, under the doctrine of claim differentiation, the concept of linearity is evaluated independently of exhaustivity. *See Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 910 (Fed. Cir. 2004) (claim differentiation is "at its strongest" when "the limitation that is sought to be 'read into' an independent claim already appears in a dependent claim" (citation omitted)).

⁸ Certain unasserted claims introduced in an amendment years after the priority date of the asserted patents imply that "kd-trees," "vantage point trees," and "excluded middle vantage point forests" *can* be non-exhaustive. However, these claims do not suggest that such searches are *necessarily* non-exhaustive. Rather, these terms refer to broad categories of searches with numerous possible configurations. Moulin Decl. at ¶ 48. As such, a person skilled in the art could not use their common characteristics to infer a construction of "non-exhaustive."

include the "non-exhaustive search" limitation, so a person skilled in the art would not assume the exemplary algorithms are intended to be illustrative of non-exhaustive search methodologies. Exh. 25 at 2 (adding the limitation "non-exhaustive search" in an amendment dated October 14, 2009). Thus, a person skilled in the art could not analyze the characteristics of the disclosed search methods to deduce the meaning of "non-exhaustive."

Attempting to distract from the absence of "exhaustive" and "non-exhaustive" in the specification, Network-1 additionally argues that the claims provide sufficient context to infer the meaning of "non-exhaustive." Dkt. No. 63 at 18. However, the claims that Network-1 cites at most recite the *goal* of a "non-exhaustive" search ("identifying" a work): "identifying, by the computer system, a matching reference electronic work that matches the first electronic work by comparing the first electronic data with the second digitally created compact electronic representation using a non-exhaustive neighbor search;" Exh. 3, Claim 13. The claims do not explain how to actually *perform* a non-exhaustive search. Indeed, if merely "comparing . . . compact electronic representation[s]" constituted a non-exhaustive search, even a "linear search"—which Network-1 contends is "exhaustive"—would be considered "non-exhaustive." Thus, the claims confuse, rather than clarify, the definition of "non-exhaustive."

2. Network-1's Own Extrinsic Sources Demonstrate Numerous, Conflicting Definitions of "Non-Exhaustive"

Because "non-exhaustive" is not defined intrinsically, it must be defined—if at all—by extrinsic evidence. However, as Dr. Moulin explains, the term "non-exhaustive search" is not a defined term of art in the field. Moulin Decl. at ¶ 34. Rather, it is a colloquial term with multiple, contradictory meanings. *Id.* Because a person skilled in the art could not untangle these competing definitions to resolve the scope of the claims with reasonable certainty, the claims are indefinite. *See, e.g., Diamond Coating Techs. v. Hyundai Motor Am.*, Nos. 8:13-cv-

01480-MRP(DFMx); 8-13-cv-01481-MRP(DFM), 2014 WL 5698445, at *4 (C.D. Cal. Aug. 25, 2014) ("if a person of ordinary skill would determine that there are multiple equally plausible but materially dissimilar constructions of a claim term, the claim would fail the 'reasonable certainty' standard"); *Nautilus v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2130 n.8 (2014).

Network-1 quotes various extrinsic sources out of context to support its construction of "non-exhaustive." However, when analyzed in context, Network-1's own extrinsic evidence confirms that multiple, contradictory meanings of "non-exhaustive" were prevalent in the art. For instance, U.S. Patent No. 8,136,025 ("Zhu") discloses methods for searching a collection of documents. Dkt. No. 63-15. According to Zhu, a linear search need not be "exhaustive" and, therefore, can be "non-exhaustive":

"Multi-level map 1104-M comprises first level 1401 and second level 1403 table or other data structure. Forcing access to map 1106-M to traverse two levels allows a relatively simple search algorithm (e.g., a linear search) to be used in each level, without incurring the cost of an exhaustive search through all records in the map."

Dkt. No. 63-15 at 22:62-66; Moulin Decl., ¶ 36. By contrast, Network-1 contends that a "non-exhaustive" search is *defined* as anything other than a linear search. Dkt. No. 63 at 15. Thus, Zhu further undermines Network-1's construction without providing a framework for a definitive construction.

Similarly, *Search and Enumeration Techniques for Incidence Structures* ("Denny") discloses a search technique called "backtracking." Exh. 7 at 25. Denny explains that "backtracking is an exhaustive search technique." *Id.* at 25. However, "backtracking" employs "intelligent pruning heuristics [i.e., shortcuts] to speed up the search." *Id.* at 48. Thus, in one example, "[o]nly 7 blocks are considered by the backtracking algorithm," where "the brute force approach would have generated . . . a total of 2,094,105" comparisons before reaching the same point in the solution. *Id.* at 55. Indeed, Denny explicitly confirms that "backtracking," though

"exhaustive," is distinct from a "brute force" search. *Id.* at 73 ("All three of the exhaustive generation algorithms presented in this chapter, from the brute force approach to the two backtracking approaches . . ."). Thus, Denny further contradicts Network-1's contention that an "exhaustive" search must conduct sequential comparison of an unknown work to every single known work. Moulin Decl., ¶ 37.

U.S. Patent No. 8,620,896 ("Soderstrom") discloses a method for searching on a social network. Dkt. No. 63-16 at Abstract. Soderstrom explains that searching for acquaintances on a social networking site "is often a non-exhaustive search, especially, should you forget to provide a name, phone number, or similar identifier." Dkt. No. 63-16 at 1:29-42. That is, Soderstrom explains that a search is "non-exhaustive" if the query information to be searched (here consisting of "name[s]" and "phone number[s]") is incomplete, because then the search will not find all acquaintances that are in fact members of the social networking site. Moulin Decl., ¶ 35. Applying the definition of Soderstrom to the context of the asserted patents, a search for an unknown film would be "non-exhaustive" if the system attempted to search using only a single scene from the film, as opposed to a full length copy. *Id.* This directly contradicts Network-1's construction, in which any method other than a "linear" search is non-exhaustive, regardless of whether the query information is complete. *Id.*

The foregoing definitions of "non-exhaustive" are contradictory and incompatible. Moulin Decl., ¶ 47. Certain of the foregoing definitions define exhaustivity based on the completeness of the query, and others define exhaustivity based on the completeness of the database. Some of the foregoing definitions suggest that "linear" search is necessarily exhaustive, but others suggest that it is non-exhaustive. Moreover, Dr. Moulin's declaration lists numerous articles and papers reciting additional inconsistent definitions. Moulin Decl., ¶ 46.

With no criteria for selecting from these conflicting extrinsic definitions, a person skilled in the art could not discern the bounds of "non-exhaustive" search with reasonable certainty. Moulin Decl., ¶ 47. As such, the Court should hold the term indefinite. *See Nautilus, Inc.*, 134 S. Ct. at 2130 n.8 (finding a risk of indefiniteness when a term "might mean several different things and 'no informed and confident choice is available among the contending definitions'" (citation omitted)).

C. "non-exhaustive neighbor search"

Term	Claims	Network-1's Construction	Google's Construction
"non-exhaustive neighbor search"	'179: 13, 24 , 34, 35 '441: 1, 2, 3, 9, 11, 22, 23, 25, 26	"A non-exhaustive search to identify a neighbor."	Indefinite.

The term "non-exhaustive neighbor search" is an amalgam of the terms "neighbor" and "non-exhaustive search," discussed above. As such, Google agrees with Network-1 that construction of those terms will be dispositive of the construction of this term. *See* Dkt. No. 63 at 20. In particular, if "non-exhaustive search" is held indefinite, "non-exhaustive neighbor search" must also be held indefinite.

D. "associating"

Term	Claims	Network-1's Construction	Google's Construction
"associating" [an action with a work]	'179: 13, 24, 34, 35 '441: 1, 2, 3, 9, 11, 22, 23, 25, 26	"Establishing a relationship between the action determined in the 'determining' step (d) and the first electronic work."	Indefinite.

Patent applicants may run afoul of the requirement for "particularly pointing out and distinctly claiming" their invention not only by using undefined terms of art, but also by using everyday language that is susceptible to multiple interpretations based on context or individual opinion. *See Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005)

(citation omitted), *abrogated by Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014). Thus, if one were to tell a friend that their home was aesthetically pleasing the remark would likely not cause confusion, but defining patent scope by what is "aesthetically pleasing" can be fatal to a patent claim. *Id.* at 1356. So too here, the use of the term "associating" in the asserted '179 and '441 patent claims renders the claims indefinite.

Though the word "associating" is widely used, its meaning is entirely a function of context. In a social sense, friends associate by spending time together. In a scientific sense, heart disease is associated with fatty foods because the latter causes the former. In a psychological sense, patients associate seemingly unrelated concepts that are linked subconsciously in their minds. In a business sense, companies with common interests join together in trade associations. In each instance, "associating" vaguely indicates a relationship, but its contours are understood only where it is *defined*.

However, "associating" is not a defined term of art in the field of automatic content recognition, and has no accepted meaning in the narrow technical context claimed in the asserted patents: a computer system associating an action with a newly identified query work after identifying the work. Moulin Decl., ¶ 54; *E.g.*, Exh. 4, Claim 1 ("associating, by the computer system, the determined action information with the identified first electronic work" after "identifying . . . the first electronic work"); Exh. 3, Claim 13. Indeed, four technical and multimedia dictionaries surveyed by Dr. Moulin offered no definition of "associating" a work with an action. Moulin Decl., ¶ 54; Exhs. 21-24. Further, as demonstrated below, neither the specification nor the extrinsic evidence define—or even use—the term in this context. Moreover, any potential construction of "associating" a newly identified query work with an action is nonsensical in the context of the patents in suit. Thus, the patents do not—and

cannot—inform a person skilled in the art of the bounds of "associating" with reasonable certainty, so the term must be held indefinite.

1. The Specification Never Describes "Associating" A Newly Identified Query Work With An Action

Though the specification uses forms of the word "associating" in other contexts, it never discloses "associating" a newly identified query work with an action, as the patents claim. While Network-1 cites to numerous instances where forms of the word "associating" appear in the specification, there is no nexus between the usage of "associating" in these instances and its usage in the claims. Dkt. No. 63 at 20-22. Indeed, as demonstrated below, the varying contexts and implications of the term "associating" in these inapposite instances only underscores the indefiniteness of the term as it is used in the claims. *Id.*

At times, Network-1 implies that quotations describing the operation of the "work identification" database ("WID") and the "work identification-action translation" database ("WIDAT") define "associating" a query work with an action. *E.g.*, Dkt. No. 63 at 22. However, the WID is merely a repository of known feature vectors and the titles of the corresponding known works, and the WIDAT is merely a repository of known works and corresponding actions. *E.g.*, Exh. 1 at 6:37-40 ("a work-identification information storage . . . associate[s] a feature vector of a work 114 with a . . . work identifier 116"); Exh. 1 at 6:46-50 ("work identifier-action information storage . . . may associate a . . . work identifier 134 with . . . an action"). The disclosed system identifies a query work by comparing its feature vector to the feature vectors of known works stored in the WID. *E.g.*, Exh. 1 at 6:37-40 ("the vector is compared to entries of known vectors 114 in a content identification (WID) database"). Subsequently, the system looks up the corresponding action to perform in the WIDAT. Exh. 1 at 10:58-64 ("If a matching feature vector 114 a is found, the [system] a can use the associated

work identifier 116a to access[] a work identification-action translation (WIDAT) database . . . determining what action should be performed."); 9:59-63. Because these databases do not store query works, they cannot inform a person skilled in the art of the meaning of "associating" an action with a query work. Moreover, in no event can looking up information in a database equate to "establishing a relationship," as Network-1's construction requires.

At other times, Network-1 implies that quotations describing creating the foregoing databases define "associating" a query work with an action. Dkt. No. 63 at 20-21. However, this interpretation is contrary to the specification, which describes the process of creating the databases as follows:

"A number of possibilities exist for generating and maintaining work identification (WID) and identification-action translation (WIDAT) databases. However, in all cases, works of interest are processed to extract a representative feature vector and this feature vector is assigned a unique identifier. This unique identifier is then entered into . . . the WIDAT database 130 together with all the necessary associated data. This process is referred to as **tagging**."

Exh. 1 at 8:7-20. In the first instance, this passage defines "tagging"—not "associating"—to refer to the process of creating a database. *Id.* at 8:14-15. If the applicant had desired to claim creating a database, or adding entries thereto, he could have easily employed this term. His choice not to do so suggests he intended a different meaning. Moreover, this passage explains that *preexisting* "associated data" is "entered into" the database *during* the creation process. *Id.* at 8:12-14. Thus, any disclosed "associating" to generate the "associated data" must occur prior to creation of the database, so "associating" cannot refer to creation of the database.

2. "Associating" A Newly Identified Query Work With An Action Is Nonsensical

In the absence of intrinsic support, a person skilled in the art cannot infer a definition, because "associating" a query work with an action is nonsensical in the context of the patents. The function of the asserted patents is to "identify[] a work . . . to invoke a work-related action,

such as work-related commerce methods and/or to increase audience interest by facilitating audience interaction and/or participation." Exh. 1 at 4:7-14. That is, the patents are directed to allowing end users—such as consumers—to identify a broadcast work (e.g., a commercial on television) and subsequently perform a related action (e.g., purchase a product advertised in the commercial). *Id.* at 8:15-20, 10:63-65. To accomplish this, the system extracts a feature vector from an unknown query work and compares it to the feature vectors of known works in a database. *Id.* at 10:46-58. If the system successfully identifies the work, it executes instructions stored in the database to perform an appropriate action. *Id.* at 10:58-64. After the query work is identified, its purpose has been served, and there is no reason to use it further in any capacity. Indeed, as discussed further below, the specification fails to describe any post-identification activity involving the query work. Moulin Decl. at ¶¶ 56-58.

Recognizing this gap, Network-1 attempts to import the motives of Google's YouTube and Content ID systems into a specification drafted when dial-up modems were commonplace. In two lengthy paragraphs nearly devoid of citation to the patents, Network-1 reimagines "associating" as follows:

"Using the example of initiating an e-commerce transaction, when an unknown sample (such as a newly uploaded video) is identified as matching a known reference (such as a popular television program), the system can associate an action for that reference (such as an offer to purchase a copy of the program) with the newly-identified sample so that viewers accessing that sample would be offered the opportunity to purchase the program. *See* Karypis Decl., ¶ 78."

Dkt. No. 63 at 20-22. In short, Network-1 theorizes that, when the system identifies a work, it might retain a copy for future viewing, and might even store corresponding instructions to perform an action at the time of viewing. *Id.* Because such "storing" is vaguely reminiscent of forming a relationship, Network-1 further postulates that it could be coined "associating." *Id.* This might appear conceivable when viewed through the lens of YouTube, which receives user-

uploaded content and publishes copies for public consumption. However, it is contrary to the stated purpose of the specification: identifying broadcast works. Specifically, identifying broadcast works requires only one copy of each known video for comparison. Thus, in the disclosed system, it would be pointless and inefficient to store each newly identified copy of a video.

Indeed, the specification is devoid of any support for Network-1's interpretation. The sole passage that Network-1 cites for this proposition (Exh. 1 at 9:59-10:4, which subsumes 9:65-10:1, also cited) merely describes the process of looking up instructions to perform after identifying a query work:

Assuming that the work is correctly identified, then the identifier can be used to retrieve associated information from the second work identification-action translation (WIDAT) database 130 that contains information 136 associated with the particular work 134. This information may simply be a corresponding URL address, in which case, the action can be considered to be a form of network address translation. However, in general, any information about the work could be stored therein, together with possible actions to be taken such as initiating an e-commerce transaction. After looking up the work identifier 134 in the WIDAT database 130, an action is performed on behalf of the user, examples of which has been previously described.

Exh. 1 at 9:59-10:4. Neither this text nor the remainder of the specification describe automatically adding copies of identified query works to the database. *Id.* Thus, Network-1's inability to posit a comprehensible—let alone supportable—explanation of "associating" reinforces the indefiniteness of the term.

3. Google's Use Of Forms Of "Associating" In Patents And Patent Applications Does Not Render The Term Definite Here

Network-1 further argues that "associating" must be definite because "Google used the term 'associate' or 'associating' in the claims of more than 3,000 of its own patents and patent applications." Dkt. No. 63 at 24. In the first instance, this assertion is misleading. Network-1's supporting declaration of Dorian Berger actually states that he found some form of "associating"

in "300+ patents and applications," not "3,000." Berger Decl. at ¶ 20. Moreover, Mr. Berger admits that he searched "patents and applications." *Id.* at ¶ 20. Because every patent begins as an application, Mr. Berger's methodology likely double counted numerous applications and the patents they ultimately issued into. Finally, Mr. Berger admits that he searched for the term in "the specification, table, abstract and/or claims" of Google's patents and applications. *Id.* at ¶ 20. Notwithstanding everything stated above, Google's use of the term "associate" or "associating" in its patents is irrelevant because indefiniteness is evaluated only in terms of an asserted patent's claims. *Goldberg v. Cytogen, Inc.*, 373 F.3d 1158, 1167-68 (Fed. Cir. 2004) (finding that the district court erred by looking to a separate patent because the two patents were "filed separately and therefore lack the formal relationship necessary for free license to use the contents of [a first patent] and prosecution history when construing the claims of [a second patent]"); *Toshiba Corp. v. Lexar Media, Inc.*, No. C-02-5273 MJJ, 2005 WL 6217120, at *6 (N.D. Cal. Jan. 24, 2005) ("the Court declines to look to a wholly unrelated patent to construe a common claim term"); *Krausz Indus. v. Romac Indus., Inc.*, No. C10-1204RSL, 2011 WL 2690608, at *11 n.3 (W.D. Wash. July 11, 2011) ("The Court declines . . . to review weak extrinsic evidence of a separate, unrelated patent and its prosecution history to construe this claim term."). Thus, Mr. Berger's search is simply a distraction.

4. Google's Petitions For Inter Partes Review Do Not Demonstrate That "Associating" Is Definite

Finally, Network-1 argues that "[i]n petitioning for *Inter Partes* review of Network-1's patents, Google and its expert admitted that they could understand this claim language and its scope." Dkt. No. 63 at 24. This is incorrect. "Even if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope." *Halliburton Energy Servs., Inc. v. M-I LLC*,

514 F.3d 1244, 1251 (Fed. Cir. 2008). Here, because indefiniteness arguments are not permitted in *Inter Partes* Review proceedings, 35 U.S.C. § 311, Google assumed *arguendo* that "associating" was definite. '988 IPR at 6-7. However, Google explained that the term was nevertheless indefinite, and reserved the right to prove indefiniteness in the appropriate forum. '988 IPR at 6-7 ("the '179 specification . . . never discloses the association of a *newly identified* work with an action. However, the specification makes clear that associating an action with a newly identified work cannot refer to recording in the database that the action and the work correspond, because the database already contains this information."). This Court is the proper forum for challenging the claim term's definiteness, and for the reasons stated above, this Court should find "associating" indefinite.

E. "(f) obtaining . . ."

Term	Claims	Network-1's Construction	Google's Construction
"(f) obtaining, by the computer system, second extracted features of a second electronic work; (g) searching, by the computer system, for an identification of the second electronic work by comparing the second extracted features of the second electronic work with the first electronic data in the database using a non-exhaustive neighbor search; and (h) determining, by the computer system, that the second electronic work is not identified based on results of the searching step" ⁹	'179: 24 '441: 23, 26	These claim elements have their ordinary meaning, subject to construction of individual terms within them addressed elsewhere.	Indefinite.

"Even if a claim term's definition can be reduced to words, the claim is still indefinite if a person of ordinary skill in the art cannot translate the definition into meaningfully precise claim scope." *Halliburton*, 514 F.3d at 1251. Here, although one might understand the meaning of the

⁹ For brevity, this entire term is referred to as "obtaining" herein.

individual steps of "obtaining," their interaction yields at most a disjointed sequence of unrelated ideas that fails to inform a person skilled in the art of the scope of the claims with any certainty, let alone reasonable certainty. Thus, as expressed more fully below, "obtaining" is indefinite.

"Obtaining" is properly understood in the context of the parent claims from which it depends. Each parent claim recites—among other steps—(1) "obtaining . . . a first electronic work," and (2) "identifying . . . the first electronic work." Exh. 3, Claim 13; Exh. 4, Claims 1, 25. The "obtaining" term recites the subsequent steps of (3) "obtaining . . . a second electronic work," and (4) "searching . . . for an identification of the second electronic work" but "determining . . . that the second electronic work is not identified." Exh. 3, Claim 24; Exh. 4, Claims 23, 26. Thus, in total, "obtaining" requires successfully identifying a first work and *subsequently* failing to identify a second work.¹⁰

While each step is relatively simple when viewed in isolation, the undefined relationship between the first work/search and the second work/search leaves a person skilled in the art to wonder what constitutes infringement of the overall sequence. For instance, does infringement require identifying a first work, and immediately thereafter failing to identify a second work? What if there is a ten minute gap in between the first search and the second search? An hour

¹⁰ Network-1 implies that "obtaining" requires only steps three and four, i.e., failing to find a match for a single electronic work. Dkt. No. 63 at 25 ("In general, these dependent claims recite . . . determining that the unknown electronic work is not a match."). However, Dr. Karypis explains to the contrary that the claims recite "identify[ing] a first electronic work . . . and then . . . determining that [a] second electronic work is not identified." Karypis Decl. at ¶ 82. Indeed, had the patentee intended to claim failing to find a match in isolation, he could have done so simply by drafting a dependent claim reciting failing to find a match for the first work. His decision not to do so indicates that he intended to claim something different. *See Mannesmann Demag Corp. v. Engineered Metal Prods. Co.*, 793 F.2d 1279, 1282 (Fed. Cir. 1986) ("In resolving a dispute as to the interpretation of a claim, reference may be had to the specification, the prosecution history, and the other claims in the patent." (emphasis added)).

gap? A day gap? What if the system is powered off between the first search and the second search? Does a system infringe if the first search and the second search are performed by different servers? Does infringement require that the first search and the second search are consecutive? What if the system executes an unrelated search between the first search and the second search? What if the system executes unrelated operations between the first search and the second search? What if the system performs the first search and the second search simultaneously?

Moreover, the claim language fails inform a person skilled in the art how to determine the number of instances in which a system infringes with reasonably certainty. For instance, if a system finds a one match, then fails to find a match one hundred times in a row, does it infringe once (i.e., pairing the successful match with the one immediately subsequent failed match) or one hundred times (i.e., pairing the successful match with each of the subsequent failed matches). If a system finds one hundred matches and then fails to find a match one hundred times in a row, does it infringe one time (i.e., pairing the final match with the first unsuccessful match) or one hundred times (i.e., pairing the first match with the first failed match, the second match with the second failed match, etc.)?

Network-1 and Dr. Karypis evade the issue by arguing only that "the steps of these dependent claims are clear on their face." They go out of their way to avoid defining the bounds of the *combination* of the steps. Dkt. No. 63 at 25; Karypis Decl. at ¶ 82. Similarly, the specification is silent on the issue of sequential matches and/or failed matches. Exh. 1. By contrast, Dr. Moulin has opined unequivocally that a person skilled in the art could not answer these questions with reasonable certainty. Moulin Decl. at ¶¶ 64-65. If Network-1 cannot answer the above questions defining the claim scope—and provide substantive evidence for its

conclusions—then Dr. Moulin's uncontroverted opinion that a person skilled in the art could not ascertain the bounds of "obtaining" with reasonable certainty mandates that the Court hold the term indefinite. *Geneva Pharm., Inc. v. GlaxoSmithKline PLC*, 349 F.3d 1373, 1384 (Fed. Cir. 2003) ("A claim is indefinite if its legal scope is not clear enough that a person of ordinary skill in the art could determine whether a particular [instrumentality] infringes or not.").

V. CONCLUSION

For the foregoing reasons, Google requests that the Court hold the terms "non-exhaustive search," "non-exhaustive neighbor search," "associating," and "obtaining" indefinite, and deny Network-1's proposed construction for these terms.

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CERTIFICATE OF SERVICE

The undersigned certifies that a true and correct copy of the foregoing document was filed electronically in compliance with Local Civil Rule 5.2 via the Court's CM/ECF system on April 27, 2015 and, as such, was served on the counsel of record.

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